

# Laparoscopic Cystogastrostomy by Ultrasonic Dissection after Pylorus-Preserving Pancreaticoduodectomy

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## ABSTRACT

**Background and Objectives:** Symptomatic pancreatic pseudocysts can be drained using open, endoscopic, and laparoscopic techniques. Little is written on the role of laparoscopic drainage techniques after major abdominal operations. We describe a case of laparoscopic cystgastrostomy after pancreaticoduodenectomy.

**Case Report:** A 55-year-old female with a prior history of open pylorus-preserving pancreaticoduodenectomy presented with multiple symptomatic pancreatic pseudocysts in the setting of alcohol-induced chronic pancreatitis.

**Methods:** After preoperative planning with contrast-enhanced computed tomography, the patient successfully underwent laparoscopic cystgastrostomy with ultrasonic dissection.

**Conclusion:** This case report illustrates that laparoscopic cystenteric drainage of pancreatic pseudocysts can be performed safely after major open abdominal operations. Further investigation is needed.

**Key Words:** Pancreatic pseudocysts, Laparoscopy, Ultrasonic dissection, Cystenteric drainage.

## INTRODUCTION

A pancreatic pseudocyst is a collection of pancreatic juice enclosed by a wall of fibrous or granulation tissue that arises as a consequence of acute pancreatitis, trauma, or chronic pancreatitis.<sup>1</sup> Cystenteric drainage is recommended for symptomatic pancreatic pseudocysts especially in the setting of chronic pancreatitis.<sup>2</sup> Open, laparoscopic, and endoscopic drainage techniques are well described in the surgical literature.<sup>3–6</sup> Little is written on the use of laparoscopic cyst drainage techniques after major abdominal operations. We present a case of laparoscopic cystgastrostomy for a symptomatic pancreatic pseudocyst in a patient who underwent prior pancreaticoduodenectomy.

## CASE REPORT

A 55-year-old female presented with a 1-week duration of sudden onset nonradiating left upper quadrant abdominal pain associated with early satiety, bloating, and nausea. A previous episode 6 months prior to this presentation was attributed to an alcohol binge and resolved spontaneously. Her medical history was notable for chronic alcoholism and chronic pancreatitis, and her surgical history was significant for pylorus-preserving pancreaticoduodenectomy for a benign lesion 2 years earlier. Her postoperative course after the pancreaticoduodenectomy was otherwise unremarkable. Physical examination revealed a distended abdomen with a palpable large left upper quadrant mass. Biochemical profile was notable for Lipase 290, CA 19-9 12U/L, CEA 1.9ng/mL. Contrast-enhanced computed tomography of the abdomen revealed 2 large walled-off retrogastric fluid collections (5.5 x 5.4, 7.7 x 6.3cm) (**Figures 1, 2, and 3**). Symptoms persisted despite 4 days of nonoperative management. The patient was optimized for laparoscopic, possibly open, cystenteric drainage.

## METHODS

Sequential pneumatic stockings and antibiotic prophylaxis were administered. After induction of standard endotracheal general anesthesia, the patient was placed in a 35-degree reverse Trendelenburg position for the majority of the procedure. The abdomen was accessed, and 15-mm pneumoperitoneum was established at Palmer's point by using a

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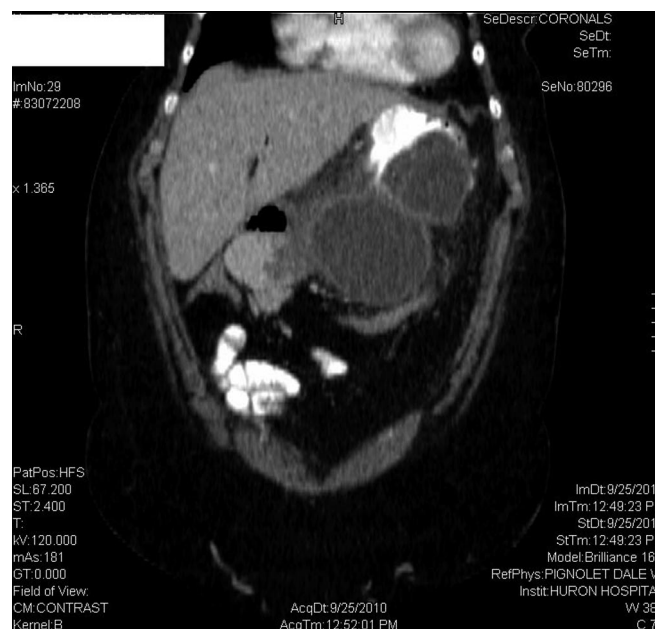
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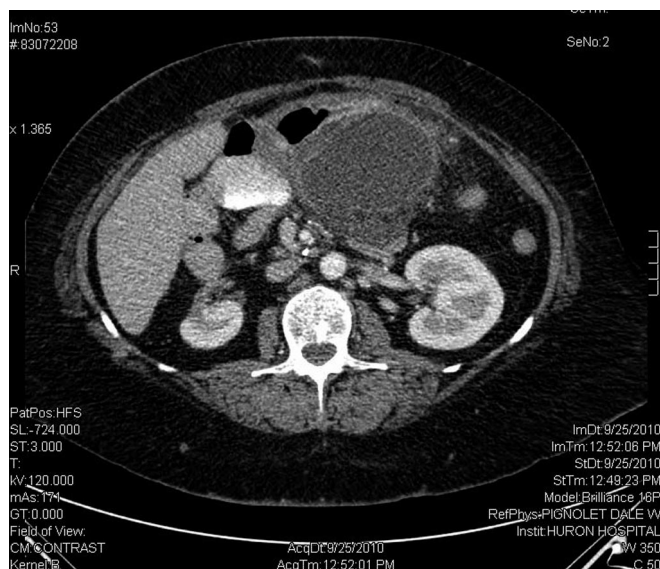
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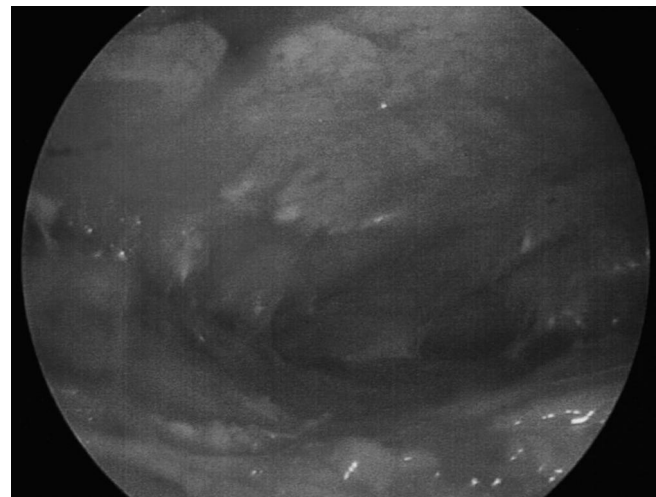
**Figure 1.** Contrast CT Abd, revealing thick-walled retrogastric fluid collections, upper cuts.



**Figure 3.** Contrast CT Abd, revealing thick-walled retrogastric fluid collections, lower cuts.



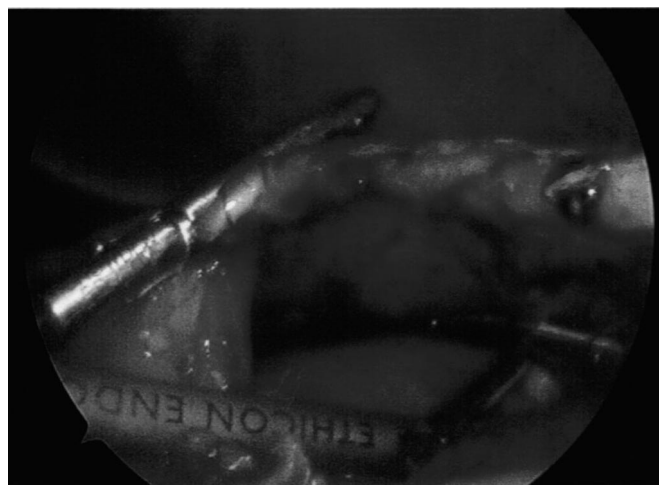
**Figure 2.** Contrast CT Abd, revealing thick-walled retrogastric fluid collections, middle cuts.



**Figure 4.** Adhesiolysis using ultrasonic scalpel (Ethicon Harmonic, Route 22 West, POB 151, Somerville, NJ, 08876).

Veress needle. The needle was then replaced with a 5-mm trocar (Ethicon Optiview, Route 22 West, POB 151, Somerville, NJ, 08876). A second 5-mm trocar was placed in the left lower quadrant under direct visualization. Dense omental and small bowel adhesions to the previous midline incision and right upper quadrant were lysed with an ultrasonic scalpel (Ethicon Harmonic, Route 22 West, POB 151, Somerville, NJ, 08876) (**Figure 4**). This allowed placement of

additional 5-mm and 12-mm trocars in the right upper quadrant and infraumbilical midline, respectively, with good triangulation. By using the ultrasonic scalpel, an 8-cm anterior gastrotomy was made close to the greater curvature, and the bulging contour of the retrogastric mass was well visualized (**Figure 5**). Needle aspiration was performed to confirm that the fluid was consistent with the appearance of a pancreatic pseudocyst. A 5-cm posterior gastrotomy was then made at the most dependent region of the stomach by using ultra-



**Figure 5.** Intraoperative laparoscopic view of retrogastric pseudocyst.

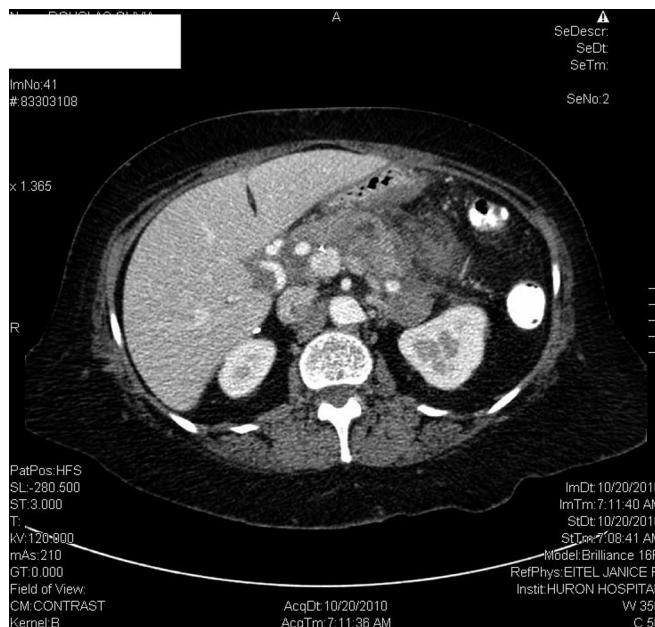


**Figure 6.** Creation of posterior gastrotomy using ultrasonic dissector.

sonic dissection (**Figure 6**). The cyst was biopsied to rule out malignancy. The anterior gastrotomy was then closed with multiple loads of a GIA stapler (Ethicon Echelon 60, Route 22 West, POB 151, Somerville, NJ, 08876). The operative time was 127 minutes.

### Postoperative Course

The patient's presenting symptoms resolved on postoperative day 1. After 24 hours of nasogastric decompression and bowel rest, food consumption was started on postoperative day 2 and advanced as tolerated. Parenteral analgesia was discontinued on postoperative day 3. The patient was discharged home on postoperative day 4. Cyst wall biopsy revealed no evidence of neoplasia. Cytologi-



**Figure 7.** Four-week follow-up CT demonstration resolution of pseudocysts, upper cuts.



**Figure 8.** Four-week follow-up CT demonstration resolution of pseudocysts, lower cuts.

cal evaluation of cyst aspirate revealed a fluid high in amylase/lipase and negative for malignant cells, mucin, or carcinoembryonic antigen. Subsequent computed tomography obtained 4 weeks postoperatively revealed near-complete resolution of the aforementioned pseudocysts (**Figure 7 and 8**).

## CONCLUSION

Laparoscopic cystenteric drainage of symptomatic or complicated pseudocysts is widely reported and is a well-accepted technique in the laparoscopic surgeon's armamentarium. To date, no case reports have been documented of laparoscopic pancreatic pseudocyst drainage performed in postpancreaticoduodenectomy patients.

With the use of available laparoscopic tools, the operative time (127 minutes) compares favorably with known reports on laparoscopic and open cystenteric drainage procedures. Advanced laparoscopic skills are required, and principles of safe laparoscopy must be adhered to. In this case, we opted for a laparoscopic transgastric cystgastrostomy approach, because it affords adequate and durable cystenteric drainage for large retrogastric pancreatic pseudocysts.<sup>3</sup> However, laparoscopic cystenteric drainage techniques should be tailored based on a combination of preoperative computer tomography ( $\pm$  ERCP/EUS) findings.<sup>3</sup>

This case report illustrates that laparoscopic cystenteric drainage of pancreatic pseudocysts can be performed

safely after major open abdominal operations. Further investigation is needed to evaluate the durability of this technique and to assess benefits/risks of minimally invasive procedures after major abdominal operations.

## References:

1. Cameron JL. *Current Surgical Therapy*, 9th ed. Mosby; 2007.
2. Townsend CM. *Sabiston Textbook of Surgery*, 18th ed. Saunders; 2007.
3. Hamza N, Ammori BJ. Laparoscopic drainage of pancreatic pseudocysts: a methodical approach. *J Gastrointest Surg*. 2010; 14(1):148–55. Epub 2009 Sep 30.
4. Horvath KD, Kao LS, Wherry KL, Pellegrini CA, Sinanan MN. A technique for laparoscopic-assisted percutaneous drainage of infected pancreatic necrosis and pancreatic abscess. *Surg Endosc*. 2001;15(10):1221–1225.
5. Gumbs AA. Video: Laparoscopic anterior cystogastrostomy. *Surg Laparosc Endosc Percutan Tech*. 2010 Jun;20(3):e97–e98.
6. Pallapothu R, Earle DB, Desilets DJ, Romanelli JR. NOTES (R) stapled cystgastrostomy: a novel approach for surgical management of pancreatic pseudocysts. *Surg Endosc*. 2011;25(3): 883–889. Epub 2010 Aug 24.